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In this issue...

Can Canada improve on its successful monetary order based on a 2 percent inflation target when it expires in 2011? Yes – better price measures, a lower inflation or price-level target, and stronger accountability could better preserve the value of Canadians' money.

THE STUDY IN BRIEF

THE AUTHOR OF THIS ISSUE

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Canada's current monetary regime, with its 2 percent inflation target, has a record of success that sets the bar high for improvements in 2011 when it comes up for renewal. Yet the 2 percent target has key defects: the impact of 2 percent annual inflation on Canadians' purchasing power will, by 2011, have reduced the dollar's value by more than one-quarter since 2 percent targeting began in 1995, and the annual target means the future price level is less predictable as the forecast horizon lengthens. Moreover, the 2 percent regime's success also suggests that protecting money's purchasing power more vigorously would be easier and more rewarding than once thought.

Before assessing whether and how the current regime can be improved, this *Commentary* first examines the key elements of a durable monetary order. They are: a unique, logical goal for monetary policy; technical power to influence monetary conditions decisively; tactical skill to use that power effectively; private expectations and behaviour that conform to the goal; democratic support and accountability; and resilience in the face of foreseeable shocks.

Historically, some of Canada's post-war monetary regimes lacked such features and proved brittle. By contrast, the period of 2 percent inflation targeting that has run from the end of 1995 to the present exhibits them to an unusual degree.

Potential revisions to the inflation-targeting regime in 2011 must build on this success: possible modifications would include a lower inflation target, a price-level target, and a more robust system of accountability for the Bank of Canada's performance in hitting its target.

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INDEPENDENT • REASONED • RELEVANT

Until the financial turmoil that began in the summer of 2007, Canada had enjoyed unusual monetary tranquility. For more than a decade, inflation was very close to the 2 percent target jointly set by the Bank of Canada and the federal minister of finance, output was less prone to ups and downs than at any other time in living memory, and interest rates were also remarkably stable.

That record creates a context for any change in Canada's monetary regime after the current inflation targets expire in 2011 that is both challenging and promising. Two percent inflation targeting has a record of success that might lead to the conclusion that what ain't broke needs no fix: simple renewal for several more years is appropriate. Yet the 2 percent regime's success also suggests that protecting money's purchasing power more vigorously would be easier and more rewarding than was once thought, and should be the next goal.

Alternatives that could make money's future value more stable and predictable deserve serious consideration. The current regime is, in effect, a promise to try to reduce the currency's purchasing power by 2 percent every year, without correcting – or even explaining – misses. That this looks like a benign regime is a sorry comment on the history of government control of money. Helpfully, however, the 2 percent target's success has highlighted several features of a monetary regime that make it economically and politically appealing – a regime that merits the label “monetary order” – and which any successor would need to match or improve on.

This *Commentary* reviews the 2 percent target's performance relative to predecessor regimes in seven dimensions. The key conclusion is that although the current regime's good performance sets the bar high for prospective changes, it could be improved upon by a target and accountability framework that boosts Canadians' confidence in the Bank's ability to maintain their currency's purchasing power over time, while preserving the technical and tactical features that have contributed to the current regime's success.

Defining a Monetary Order

The concept of a “monetary order” – a coherent and robust set of rules, institutions, expectations and behaviour – helps in evaluating many actual and potential monetary regimes. Fiat money, creatable by governments or their agencies at will, is like a genie in a fable: very powerful, and dangerous if misunderstood and misused. Much commentary on the challenges of fiat money assumes that the tools of monetary policy work, the public understands the central bank's goal, and that people behave accordingly. Yet real life can feature illogical goals, inept implementation, high-level political conflicts over monetary policy, and contradictory beliefs and actions. So a list of key elements in a benign monetary order is a good place to start.

Clear Goal

Following Laidler (1991), a well-defined goal can usefully head the list. A regime to which individuals and businesses will adapt their expectations and behaviour, and that commands enough support to survive shocks, must have a central focus that the central bank can logically be asked to pursue.

This feature might appear obvious. But the idea that monetary policy can pursue many goals at once, or should switch with circumstances, features in the mandates governing many central banks, including the Bank of Canada. Drafted in the 1930s, and differing today only in substituting “Canada” for “the Dominion,” the *Bank of Canada Act* directs the Bank to:

regulate credit and currency in the best interests of the economic life of the nation, to control and protect the external value of the national monetary unit and to mitigate by its influence fluctuations in the general level of production, prices and employment, so far as may be possible within the scope of monetary action, and generally to promote the economic and financial welfare of the Dominion. (1935.)

This *Commentary* draws on a paper presented at the Festschrift in Honour of David Laidler, University of Western Ontario, August 2006. I thank participants in that Festschrift and a March 29, 2007 C.D. Howe Institute seminar, especially John Crow, Bob Dimand, Peter Howitt, David Laidler, John Murray, Pierre Siklos and Gregor Smith for comments, and absolve them of blame for any remaining errors or defects.

The idea that monetary policy can achieve only one of a small set of possible goals is now widely shared among economists, opinion leaders and policy-makers. But this consensus arose from painful experience and persistent, clear argument. It is not innate, and might not last.

Technical Power and Tactical Skill

Granted a goal that is possible in principle, the central bank must be able to achieve it – which points to two more requirements for a monetary order.

One is technical: the central bank must have enough control over monetary conditions. That means being able to regulate financial intermediaries' access to a means of payment – the fiat money – that is uniquely sound and liquid, and that intermediaries wish to hold. Legally mandated reserves once gave central banks this power. Nowadays, their participation in clearing and settlement systems provides it day to day – standing ready to borrow practically unlimited amounts or lend literally unlimited amounts of high-powered money at the floor and ceiling of a range it sets for a very short-term interest rate – while open-market operations continue, as in the past, to provide extra leverage. The recent financial crisis has revealed some limits to this power, however, and some experts (for example, Friedman 1999) have wondered if financial innovation might erode it – so it needs explicit consideration.

The second requirement is tactical: the skill to deploy this financial leverage effectively. The need to understand the monetary and economic consequences of policy actions may also seem obvious but – as critics of the US Federal Reserve's role in laying the ground for the crisis would underline – it cannot be taken for granted. Many non-economists would be stunned at how deep expert uncertainty is – even inside central banks – on matters such as the significance of money, the role of the exchange rate, and the level of a medium-term “neutral” policy rate. Every debate over an interest-rate decision is, at least implicitly, about tactical ability to achieve a goal.

Conforming Expectations and Behaviour

A further characteristic of a monetary order is coherence: enough people must understand the central bank's goal, expect its successful pursuit and act accordingly, to bring key prices and quantities in the economy into line with it.

While accountability and policy rules seem most likely to foster conforming understanding and behaviour, considerable coherence can exist without them, and small surprises from the monetary authorities may leave them intact. For one example, the gold standard did not decisively constrain all adherents all the time, yet conventions and shared assumptions sustained it for generations. For another, even when high inflation has driven a currency out of other uses, the expectation that others will accept it as payment can sustain its use in exchange.

Political Commitment and Accountability

Political support also matters. The relationship between central banks and other parts of government also has two elements worth taking up separately.

The first – the role of people who set monetary policy's goal and supervise its pursuit – is usually framed as a negative option: a central bank has “goal independence” if the government is not unhappy enough with the goal to formally override it. As for “instrument independence,” the government cannot interfere with monetary policy to the extent of practically undermining the goal.

The second requirement is for contingent action if the central bank fails to perform. This ability depends critically on whether the goal, and success or failure in hitting it, are clear. The transparency of a central bank's economic analysis and decision-making procedures also matter. If the government will not, or cannot, intervene, an inept central bank could induce doubts that the goal will be achieved, and the conforming actions that make an order coherent will not occur.

Resilience

While independence and accountability in formulating and implementing monetary policy are familiar topics among central-bank watchers, the theme of a regime's durability should economic or political circumstances change seems less well explored. But a regime to which reasonable people adapt their expectations and actions must be, or at least look, resilient.

A democratic government might order a central bank to abandon a previously accepted goal because of distress over exchange-rate volatility, because an economic or financial change made it undesirable or impossible, or because of new evidence that monetary policy could enhance well-being in ways formerly thought unattainable. Such changes are always possible: war, disaster or revolution have shattered even very long-lived regimes.

People will presumably adapt their expectations and actions to a central bank's goal and tactics if foreseeable shocks seem unlikely to force a change. Since, over the past half-century, central banks of major countries have tended to follow similar strategies and tactics at the same time, conformity to international norms might also suggest durability. If a population understands the central bank's goal and appears likely to demand a change only to fix mistakes, the regime is resilient.

The Evolution of Canada's Monetary Order

Past monetary regimes have featured enough of the elements just described to constitute recognizable orders. In Canada's case, the 60 years of integration with the gold standard from 1854 to 1914 (Powell 1999, 14-18) would constitute a monetary order. The period from the beginning of World War I through the mid-1930s would not: from goals and powers to expectations and behaviour, neither the political nor the economic structures of that period were conducive to democratic or adept control of

fiat money. So the period from the mid-to-late 1930s – during which the Bank of Canada was created (in 1935) and nationalized (in 1938) – seems a good starting point for a search for elements of a Canadian monetary order in the presence of a fiat currency and a modern central bank.

Chaotic Beginnings: From the Late 1930s to Early 1940s

Starting the search in the Bank's early years does not, as it happens, mean finding many such elements. The Bank's creation established some familiar-looking formal structures. Yet the late 1930s and the years of World War II featured none of the attributes of a meaningful order.

Monetary policy had no unique, logical goal. The Bank's mandate (reproduced above) gave the external value of the currency pride of place, reflecting the hopeful expectation of its drafters that the gold standard would be restored. Yet the exigencies of war finance and balance-of-payments management made the fixed exchange rate without gold convertibility established after 1939 an extraordinary, temporary expedient. As for technical control of monetary conditions, the Bank did manage the chartered banks' access to reserves required against their demand and saving deposits, but the foreign-exchange controls also established in 1939 made some key instruments of monetary control inoperative or irrelevant – which also rendered the question of tactical skill indeterminate.¹

Democratic support for the monetary regime and accountability for the central bank's performance are also obscure during wartime, when monetary operations are so completely subordinated to the war effort. And knowing that the war would not last forever would preclude believing or acting as though the monetary regime would last forever. In Canada's case, this dissonance was reflected in the unofficial market in unconvertible Canadian dollars that existed after 1939, in which the exchange rate was usually below the official rate (Powell 1999, 58-59).

1 The quiescence of what is now a key tool of monetary control is exemplified by the fact that, at its inception in March 1935, the Bank of Canada inherited an "Advance Rate" (renamed the Bank Rate) of 2.5 percent, which it left unchanged through eight turbulent years, until February 1943.

The Bretton Woods Interval of the Late 1940s

The preeminent vision of a postwar monetary order was outlined at the 1944 Bretton Woods conference. At the core of what came to be known as the Bretton Woods system was agreement by members of the International Monetary Fund (IMF) to peg their exchange rates against the US dollar – which, in turn, was to be convertible into gold at a fixed price. Yet the goal of exchange rates fluctuating in narrow bands, ostensibly subscribed to by governments in Canada and elsewhere, was compromised at the outset. The dominant school of economic policymaking in the late 1940s saw market economies as requiring continuous government supervision, and monetary policy, therefore, as being appropriately under quite direct legislative control (Laidler 2007). So while in principle exchange-rate revaluations needed agreement from other IMF members, the pegs were clearly vulnerable to political reconsideration.

Whether the Bank of Canada had the technical and tactical powers necessary to pursue a sustained exchange rate goal is difficult to judge because, barely three years after establishing the Canadian dollar's "par value" against the US dollar – quite literally at par – in July 1946, the government devalued it to 'US\$0.9091' in September 1949. In the absence of de facto democratic support for sustained pegs, private expectations and behaviour logically did not conform to the regime – the gray-market exchange rate traded generally about 10 percent below the par rate during this period (Powell 1999, 97) – and the regime proved very short-lived.

The Floating Exchange Rate and Conflicts of the 1950s

While the regime from 1950 to 1961 also fell short of a "monetary order," it came closer. Technical power to influence monetary conditions and the price level was more clearly evident. Alongside its control over mandated bank reserves, the Bank of Canada's major effort in the 1950s to foster the growth of a deep, liquid money market gave it scope to conduct efficient open-market operations.

Whether the tactics of monetary policy were adept is hard to say, however, because two key criteria – a clear goal and democratic support – were lacking. As a result, the regime proved brittle.

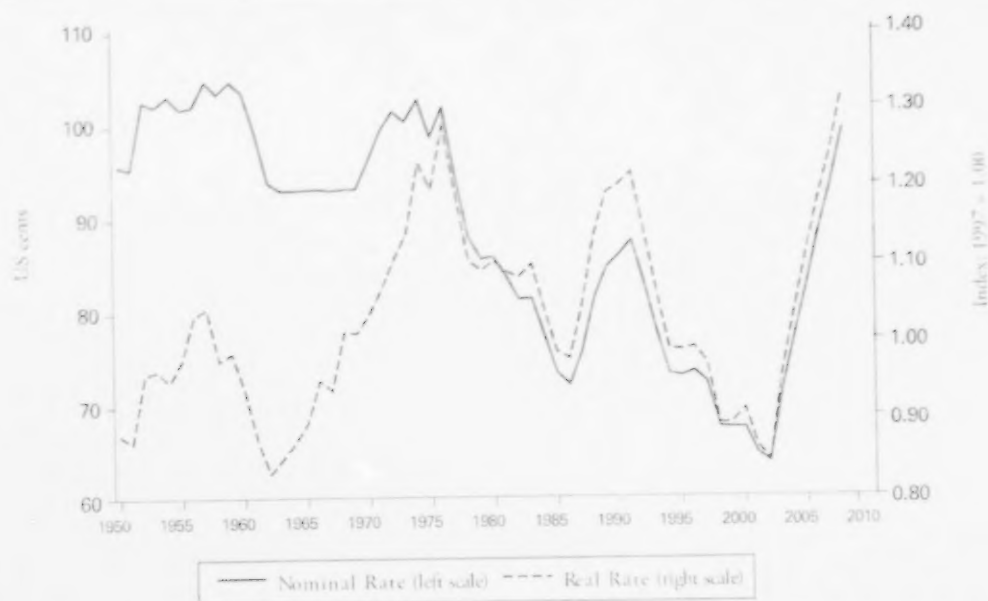
Only a year after the 1949 devaluation, an acceleration of inflation generated by favourable terms of trade, buoyant net exports and inflows of capital prompted a decision to float the currency in 1950 (Figure 1). Because the float was consciously inconsistent with the Bretton Woods commitments, it was declared to be temporary – so no goal for monetary policy replaced the fixed rate. After 1954, when James Coyne succeeded Graham Towers, the governor who had presided over the Bank of Canada since its creation, this lack of clarity combined with political conflict over monetary policy to undermine the regime.

The new governor liked high domestic saving and disliked capital inflows, and thought the Bank could and should bolster the former and reduce the latter (Bordo et al., 2007, 14-15). Canada's intermittent tendency to attract large amounts of foreign saving therefore yielded erratic policy – evident in a saw-tooth pattern of short-term interest rates (Figure 2) and in M1 and nominal GDP growth (Figure 3). In 1957, a progression of Liberal governments dating from the mid-1930s ended with a minority government of Progressive Conservatives who had criticized monetary policy in opposition, and a huge Conservative majority followed in 1958. Economic weakness at decade's end brought matters to a head.

Then, as now, the Bank governor served, during good behaviour, for a seven-year term. This arrangement might appear to confer considerable goal and instrument independence, but events showed its vulnerability to disagreements with the elected government. Strong public statements by the governor in the Bank's annual reports and in speeches on trade policy, inbound investment, fiscal policy, and the exchange rate created controversy (Siklos 2007), which was further inflamed by a sizeable increase in the governor's pension in early 1960. The House of Commons voted to declare the post of governor vacant, and though the bill failed in the Senate, Governor Coyne resigned.

Monetary policy promptly turned expansionary: the spread between long- and short-term interest

Figure 1: US\$/C\$ Nominal and GDP-Price-Based Real Exchange Rates, 1950–2008



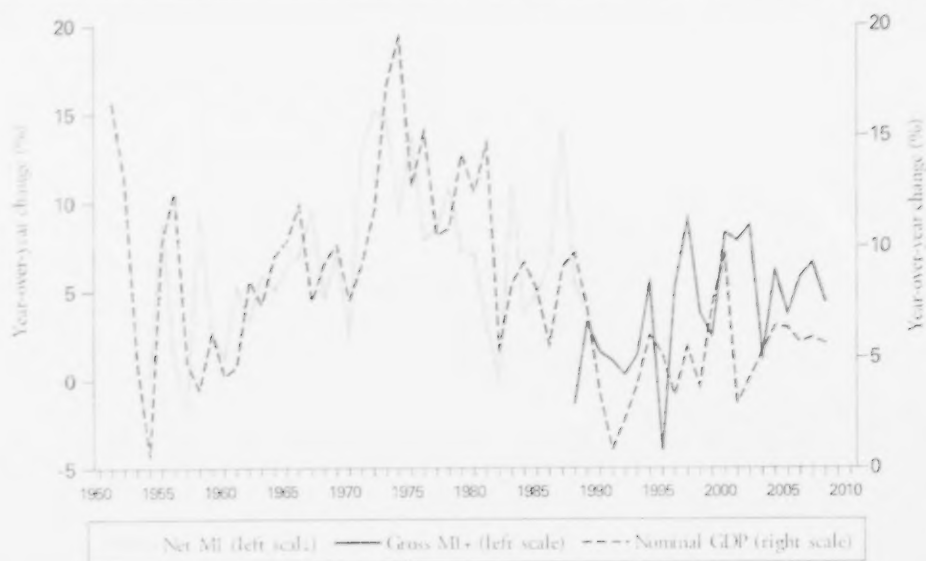
Sources: Bank of Canada; Statistics Canada; US Department of Commerce; author's calculations.

Figure 2: Short- and Long-term Interest Rates, 1950–2008



Sources: Bank of Canada; author's calculations.

Figure 3: Growth in M1 and GDP, 1950–2008



Sources: Bank of Canada; Statistics Canada.

rates widened and money and spending accelerated. Easier money and unscripted statements about the government's desire for a lower exchange rate put the Canadian dollar under downward pressure. In May 1962, the government abandoned efforts to support the exchange rate through foreign-exchange interventions, and pegged it at one Canadian dollar to US\$ 0.925, closing out Canada's messy second post-war monetary regime.

A Pegged Exchange Rate and Rising Inflation in the 1960s

The regime in the 1960s contrasted with its predecessor in several ways. Monetary policy had a clear goal: maintaining the exchange rate within 1 percent of the specified value. Canada committed to cap its foreign-exchange reserves in return for exemption from the US Interest Equalization Tax in 1963 and US capital controls in 1968. While observers inclined to think of foreign-exchange interventions as critical to a pegged exchange rate might have seen the cap as compromising the goal, monetary policy itself can, in principle, operate at a

high enough frequency to support the peg. Since the peg held as long as the government desired, the Bank evidently had the technical and tactical capacity needed to achieve the goal.

Interestingly, the aftermath of the "Coyne affair" moved Canada toward a more resilient system of political commitment and accountability. Coyne's successor, Louis Rasminsky, insisted on clearer delineation of the government's and the Bank's respective responsibilities before accepting the position. Later dubbed the doctrine of "dual responsibility," the resulting clarification gave the Bank scope to formulate and implement policy, subject to the minister of finance's ability to exercise final authority for Parliament.

A 1967 amendment to the *Bank of Canada Act* embodied this doctrine. It specified that to exercise his authority, the minister of finance must issue a written directive with explicit instructions about actions and timeframe. Rasminsky made clear at the time that a governor who received such a directive would resign, an understanding that has featured strongly in Bank of Canada commentary since. In retrospect – pegging the exchange rate made it less

salient at the time – such a visible and potentially damaging governmental override appears to have bolstered the Bank's autonomy with respect to both formulating and implementing policy.

The peg's *ad hoc* adoption, by contrast, foreshadowed a glum judgement about resilience. As the 1960s progressed, it became clear that the regime was vulnerable to stresses as US monetary policy and Canada's external balance changed. Faster money growth and spending prompted a move to higher short-term interest rates. A surge in demand for Canadian exports accentuated the rising trend in the Canada/US-dollar real exchange rate (shown in Figure 1), and the classic tension between incompatible goals for the exchange rate and the domestic economy became overwhelming.² In May 1970, the government floated the dollar again, drawing a line under Canada's third post-war monetary regime.

Disorder: a Floating Exchange Rate and Variable Inflation in the 1970s and 1980s

Canada's monetary history over the next two decades shared much with that of other major democracies. Freed of the need to sterilize excess money from interventions to hold the exchange rate down, the Bank of Canada lowered short-term interest rates. A torrent of money growth ensued, followed by more rapid spending and much higher inflation. Removing the constraint of maintaining the currency's external value thus ushered in, as it subsequently did elsewhere, a regime in which goals were unclear, political commitment uncertain, implementation erratic, and expectations incoherent.³

The governors of the Bank – Rasminsky until 1973, Gerald Bouey from 1973 to 1987, and John Crow after 1987 – frequently spoke against inflation, and in the late 1980s, began mentioning price stability as a long-term objective. But these references, especially during the 1970s, were too vague and compromised by other objectives on both the Bank's and the government's part to constitute a clear goal. Although the Bank still had technical control of monetary conditions, moreover, frequent tactical changes hampered the building of political support or private-sector confidence – absences which made the regime incoherent and unstable.

The greatest disorder was from 1970 to 1975. Despite hints of restraint in the upward trend of short-term interest rates and some deceleration in money growth and inflation around mid-decade (Figure 4), the unsuccessful attempt to balance inflation against unemployment, which was rising for structural and policy reasons, created an impression, equally strong with hindsight, that things were out of control.

1975 saw the beginning of two unsuccessful tactical experiments. First, wage and price controls, in place until 1978, illustrated confusion about inflation's causes and remedies, and their abandonment discouraged further efforts along those lines.⁴ Second, the Bank tried, like several other central banks, to engineer gradually slowing money growth. Spending growth and inflation stayed high even as M1 growth fell (Figures 3 and 4), however, which discredited monetary control as a tactic. Gradualism ended in fact before its formal abandonment in the early 1980s.⁵

2 Most of the major developed countries continued to adhere to the Bretton Woods system at this point. Canada's second float was an early response to the pressures that caused a general breakdown of the system in the early 1970s.

3 Courchene (1976, 1981) provides comprehensive accounts of the 1970s. Howitt (1986) likewise documents the experience of the first half of the 1980s. Laidler and Robson (1993) cover the late 1980s.

4 One might defend this program – like the later, even less consequential, "six and five" program in 1983 and 1984 – as an explicitly temporary measure to aid disinflation, unlike attempts elsewhere to reduce inflation permanently by non-monetary means. Whatever damping of price and income rises it may have accomplished, however, was overwhelmed by over-expansionary monetary and fiscal policy (Sargent 2005). Moreover, the "cost-push" public justifications for these policies can only have deflected attention from inflation's monetary roots.

5 Gradualism failed for several reasons. Concern about movements in the exchange rate frequently compromised the program. New interest bearing alternatives to M1 made it a less useful measure of transactions-related balances over time (Howitt 1990a). Most fundamentally, rather than treating the stock of M1 as an independent influence on output and prices, the Bank treated it as demand determined – projecting output and prices, using short run money demand equations to calculate the desired stock of M1, and setting short-term interest rates to levels consistent with that stock. This approach effectively validated ongoing inflation.

Figure 4: CPI and GDP Inflation, 1950–2008



Sources: Statistics Canada; author's calculations.

Figure 5: Realized Real Short-term Interest Rate, 1950–2008



Sources: Bank of Canada; Statistics Canada; author's calculations.

Tactical uncertainty also affected policy-rate setting. In 1980, periodic announcements of the "Bank Rate" gave way to a system that set it 25 basis points above the yield at the federal government's weekly auction of three-month treasury bills. This attempt to educate the public about the larger money-market context for the bank's operations was complicated, however, by the heavy government borrowing of the period, and generally turbulent conditions – evident, for example, in the volatility of realized short-term interest rates from the early 1970s to the early 1980s (Figure 5). The exchange rate also mattered, particularly around the turn of the decade, when the Bank reacted aggressively to bolster it during the double-barreled US tightening in 1980 and 1981, hammering demand and lowering CPI inflation from double digits in 1981 to 3-4 percent in 1984.

Although it appears more significant looking back, Governor Crow's emphasis on price stability as monetary policy's goal in his Eric W. Hanson Memorial Lecture in January 1988 (Crow 1988) marked something new. The late 1980s were a particularly fraught period for Canadian monetary policy – the Bank's initial interest-rate increases were widely unpopular, but did not get ahead of rising expectations of income growth, and did not initially rein in demand or inflation. Crow did not set out a numerical target, and the government's willingness to back him was doubtful – so it is not surprising that private-sector expectations did not respond decisively. One visitor to the C.D. Howe Institute from the Organization for Economic Cooperation and Development summarized his conversations with business leaders this way:

I ask: "Do you think Governor Crow's goal of price stability is credible?" The reply: "Oh yes, he's very determined." So I ask: "So you think he'll drive inflation down to zero?" The retort: "Well, the man's not crazy!"

Incoherent expectations sparked a minor crisis at the turn of the decade. Many financial market

participants saw an early-1990 drop – too small to see at less-than-daily frequency – in the Bank Rate prompted by flagging domestic demand as a signal that the Bank's determination to drive inflation down was weakening. The exchange rate dipped and long-term interest rates spiked. After the Bank responded with sharply higher short-term rates, the stock of money and nominal spending dropped, and the economy went into its second severe recession in a decade.⁶

Inflation-Reduction Targets: 1991-95

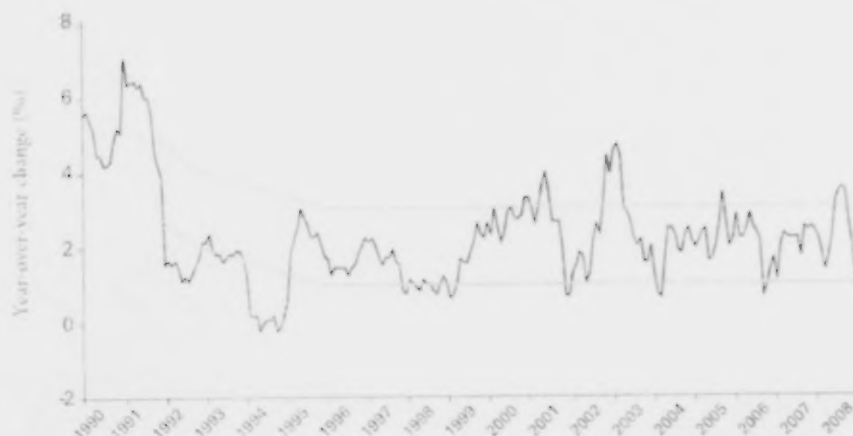
Awkwardly, this contraction occurred in the run-up to the replacement of the federal (manufacturer's) sales tax with the Goods and Services Tax (GST) at the beginning of 1991. The base for the old tax included exports and many intermediate inputs but not imports, so the new tax would shift consumer prices up. Fearing this might worsen the pain of reducing inflation, the minister of finance and the governor of the Bank of Canada jointly announced inflation-reduction targets with the 1991 federal budget.

These targets called for the year-over-year change in the CPI to fall gradually to 2 percent by the end of 1995. In what has become a familiar feature, the announcement set an error band one percentage point either side of the target. The announcement also said that a "core" measure of the CPI, excluding food and energy, would be the Bank of Canada's operational target, and that the Bank would ignore any first-round effects of changes in indirect taxes – the GST being the salient instance – in pursuing the target. The inflation-reduction targets thus gave Canadian monetary policy a relatively clear and logically consistent goal with considerable political commitment.

What about technical powers? Between 1992 and 1994, the government phased out the reserve requirements on demand and notice deposits that once appeared crucial to the Bank's financial leverage. Yet its control over the price of, and

6 For contrasting views on monetary policy's contribution to the slump, with corresponding contrasts in views about policy's wisdom, see Fortin (1996) and Freedman and Macklem (1998).

Figure 6: CPI Inflation and Target Band, 1990–2008



Source: Bank of Canada; Statistics Canada; author's calculations.

conditions of access to, the high-powered money that financial institutions used to settle transactions with each other clearly continued.

On the tactical front, however, the new regime had problems. Disappearing reserve requirements, along with falling inflation and short-term nominal interest rates, boosted demand for transactions money – an increase the Bank, neglectful of money and determined in any event to display steadfastness, failed to accommodate fully. Economic weakness persisted well into the 1990s, and inflation dropped outside the target range when the GST-related boost disappeared from the year-over-year measure in 1992. During the 37 months from then until the first quarter of 1995, CPI inflation averaged 1.2 percent, and for 29 of those months – 12 of them slightly affected by a cigarette excise-tax cut early in 1994 – it was below the bottom of the range (Figure 6).

Another problem was the stripped-down CPI used for operational purposes. The “core” measure’s prominence muddled private sector expectations and behaviour. Not unreasonably, some observers thought the Bank’s *de facto* target was its formal

target. Further muddling of expectations under the new regime arose because post-1995 intentions were imprecise: the announcement simply stated that year-over-year CPI inflation would fall to a rate “clearly below 2 percent” at a later date (Bank of Canada 1991, 5).

Helpfully, however, the new regime soon moved up a notch on the political commitment scale. Notwithstanding some temporizing language, the notion of a central bank charged with inflation control and granted considerable operational autonomy figured prominently in a report (Canada 1992) of a subcommittee of the House of Commons Standing Committee on Finance involving representatives of all three major federal parties. The targets themselves were not, moreover, an explicit issue in the federal election campaign of late 1993.

That election set longer-term inflation control back, yet reinforced the targeting regime. Discontent over economic weakness and skepticism about pushing inflation lower led the incoming Liberal government to drop the commitment to “below 2 percent” after 1995, and instead extend

the 2 percent target and its 1-3 percent band until 1998. Governor Crow did not agree with the change, and was not appointed to a second term as governor. Yet this episode yielded a resilient regime. The numerical targets for inflation survived. The Finance Minister's power to issue a directive went unused. Governor Crow served out his term. And his replacement was Gordon Thiessen, who, as senior deputy governor, had been intimately associated with the targets.

Two Percent Inflation Targeting Since 1995

Canada's current monetary order dates from the end of 1995 – the point when the original inflation-reduction targets specified 2 percent. The same target was extended for a further three years in 1998, again for five years in 2001 – with added emphasis on keeping inflation in the middle of the range (Bank of Canada 2001) – and yet again in late 2006. A survey of the key elements of a monetary order confirms what this longevity would suggest: that this regime exhibits them to a remarkable degree.

The Goal

Although New Zealand had pioneered inflation targets a few years earlier, an unchanging numerical goal for inflation over a multi-year period was a fundamental innovation for Canada. For the first time, monetary policy had a domestic price-level goal consistent with the central bank's powers. The elected government's explicit endorsement of the goal also gave it undoubted primacy over other possible objectives, including maintaining a value for the exchange rate.

Technical Powers

The technology and practice of monetary control have continued to evolve since 1995. In the early 1990s, the fulcrum for the Bank's control was a clearing and settlement system in which each participating financial institution was uncertain about the net position that its customers' activities one day would require it to settle by noon the next. This uncertainty created demand for high-powered money, since the clearers wanted to avoid borrowing at the Bank Rate – which continued to be set weekly 25 basis points above the yield on three-month treasury bills. In 1999, the Large Value Transfer System (LVTS) started operating, which provides immediate, final settlement of individual payments, with multilateral end-of-day settlement of net positions (Kamhi 2006).

While the LVTS requires smaller precautionary balances than the old system, it still creates demand for central-bank money, since participants must meet whatever net demands their customers' transactions create, and uncertainty about those demands rises with the volume of transactions. By standing ready to borrow from, or lend to, LVTS participants at 25 basis points below or above the overnight rate – the target rate for day-to-day lending between participants – the Bank still exerts satisfactory control over monetary conditions.

Might this power erode, imperiling monetary control? Notwithstanding occasional challenges in keeping the overnight rate on target, no single player or set of players, domestically or internationally, has emerged to take the Bank's place as a provider of high-powered money to Canada's financial system, and occasional moves outside the operating band have not undercut the overnight rate as an effective intermediate target for managing Canadian monetary conditions.⁷ For now, the unique attractiveness of the fiat money under the Bank's control seems to be a secure base for its operations.⁸

7 Initially, the Bank expected the LVTS to operate on zero net balances. Subsequently, volatility in the overnight rate led the Bank to target a small positive balance. In March 2006, however, an overnight rate persistently below target, and occasionally below the bottom of the target band, led the Bank back to a zero target for settlement balances. When the rate again dropped below target in February 2007, the Bank deliberately moved the system into deficit. In May 2007, it announced a return to a small positive target (Bank of Canada 2007). That few people other than money-market traders noted these technical difficulties testifies to the robustness of the larger framework.

8 Freedman (2000) responds, from the perspective of a Bank of Canada insider, to the speculations on this front by Friedman (1999).

The financial turbulence that reached a crisis in the fall of 2008 raised a related possibility: that while the Bank of Canada maintains control over the price of high-powered money, sufficiently adverse conditions in the markets for interbank credit might imperil the transmission of the Bank's actions to the financial system and the economy. Alternatively, the actions required to keep the markets for interbank credit functioning, and particularly to prop up financial institutions threatened by a liquidity crisis or insolvency, might compromise inflation control.⁹ Government abroad extended deposit and loan insurance, took ownership stakes in financial institutions, and bought troubled assets – evidence that central banks cannot lend high-powered money beyond certain limits and against assets below a certain quality without actual or feared inflation. As of March 2009, however, the Bank of Canada's actual and potential injections of liquidity seem adequate to stave off financial system failure and deflation. So its efforts to support the financial system appear complimentary, rather than opposed, to its mandate to hit the inflation target.

Tactical Skill

On the tactical front, at least three aspects of the 2 percent regime merit comment: the Bank of Canada's attitude to the exchange rate, its policy rate setting, and consistent confusion about whether total inflation or "core" inflation matters for monetary policy.

The Bank's reaction to exchange-rate fluctuations has varied since 1995. Early on, the Bank favoured a Monetary Conditions Index (MCI) – which treats a 1 percentage point move in short-term interest rates as equivalent in its effects to an exogenous 3 percent move in the exchange rate in the other direction, assuming that nothing meanwhile changes the "neutral" value of the index – to gauge its stance. Its use of this formula for offsetting exchange-rate movements with short-term interest-rates movements was at times so predictable that financial market participants calibrated their money-market activities to it.

Since many factors drive the exchange rate, responding to every move with offsetting policy-rate adjustments created problems.¹⁰ A falling exchange rate during the Asian and Russian crises of 1997-98 prompted rate hikes Canada would have done better without.¹¹ Those lessons likely account for the Bank's greater willingness to look past movements in the exchange rate by the late 1990s. A corresponding change in its foreign-exchange market activity – from frequent discretionary "smoothing" interventions in the early 1990s, through relatively automatic symmetric interventions in the mid-1990s, to no interventions at all since late 2000 – means the currency now floats quite cleanly (Laidler and Robson 2004, 124-25).

The setting of the policy rate also changed during this period. In 1994, the Bank began setting a 50-basis-point target range for the overnight rate, and in 1996, the top of that range became the Bank Rate. This direct setting eliminated the noise

- 9 Jenkins (2006) describes the Bank's current interpretation of its unique mandate to control inflation, arguing that such a goal does not preclude other objectives, such as supporting the payment system or acting as fiscal agent for governments, which may be complimentary to the inflation target. Frisell et al. (2008) survey literature on whether financial-stability goals compromise central banks' pursuit of inflation-related goals. Although the evidence is mixed, such conflicts appear less acute when key regulatory powers are vested in agencies such as deposit insurers and solvency inspectors – which is the current arrangement in Canada.
- 10 Some exchange rate movements might signal actual or incipient changes in demand for Canadian goods and services – a depreciation, for instance, might herald weakness and merit an unchanged or lower policy interest rate. Other exogenous exchange rate movements might affect the net trade balance and therefore merit an offsetting monetary-policy response – so a depreciation would merit a higher policy rate. Some Bank of Canada commentary calls the former movements Type 1 and the latter Type 2 – terminology I find aptly obscure. Such analysis often speaks of "portfolio shocks" as driving Type 2 movements – yet portfolio adjustments with implications for aggregate demand and inflation are easier to imagine than those without. One would expect changing views about Canada's relative attractiveness for investment, whether driven by changes in assessments of Canada particularly or by changes in assessments of alternatives, to influence the terms on which Canadians can obtain funds, and hence actual or incipient domestic demand.
- 11 Australia did not respond to currency pressure this way, and came through those crises relatively easily. New Zealand responded more strongly than Canada, and suffered a more severe slump.

generated by the arrangement whereby the Bank Rate was set at a premium to the weekly three-month treasury-bill yield.

Later in the decade, the discretionary timing of these announcements became problematic. In late 1998 and again from late-1999 to early 2000, the Bank reacted to two successive moves in the US federal funds rate by making the same moves one day later. Money- and foreign-exchange-market participants began trading on the assumption that the Bank was joined at the hip to the Fed. The Bank responded in late 2000 by moving to eight yearly policy-rate announcement dates, a schedule from which it has deviated only once, in the midst of the 2008 financial crisis. The resulting roughly six-week cycle for policy formulation and communication helps the tactics of monetary policy by reducing the internal and external focus on high-frequency data and market sentiment. It also promotes accountability by making a decision not to move the target for the overnight rate as explicit as a decision to move it.¹²

As for core inflation, the period since 1995 has been confused. The value of measures that strip out or give less weight to more volatile components of the CPI depends on whether they give a “cleaner” read on price trends. Statistical analysis at the Bank supported their value as leading indicators of inflation at the end of the 1990s (Macklem 2001). Between the summer of 1999 and the fall of 2006, however, rising energy prices meant that total CPI inflation exceeded core inflation in 71 of 89 months – four-fifths of the time (Figure 7). This change may have prompted some subtle changes in the Bank’s communications: for example, core inflation featured prominently in the upper right corner of the main page of its website for a time, though it has since moved down to give the total CPI top billing.

Other communications, however, make clear that “the Bank of Canada bases its policy actions on a

core measure of the CPI that excludes eight of the most volatile components ... as well as the effect of indirect taxes.”¹³ So a fundamental tension remains. Whether or not the Bank’s tactics are properly calibrated to hitting its CPI target depends on whether or not its internal forecasts – which tend to have core and total CPI inflation converging (Clinton 2006) – are correct. If they are not, the Bank is not actually aiming at its target.

Expectations and Behaviour

Inflation expectations are hard to measure with confidence, and the mixed evidence on this front precludes strong judgements about when – and to what extent – private expectations and behaviour came into line with the inflation targets.

The spread between nominal and real-return long bonds (Figure 8) told an encouraging story early on: the implied 30-year inflation rate fell from 3 percent-plus in 1995 to 2 percent and even below in 1998-1999, and ran close to 2 percent from late 1999 through the end of 2003. Until the disruption of the 2008 financial crisis, however, the inflation rate implied by that spread has usually been higher since then. Since supply of real-return bonds is limited but demand from savers such as pension funds – with liabilities for which they are a very good match – is strong, their yield may be misleadingly low. But monthly moves in the nominal-real spread and actual CPI inflation are correlated enough to suggest that recent experience still affects long-term inflation expectations.

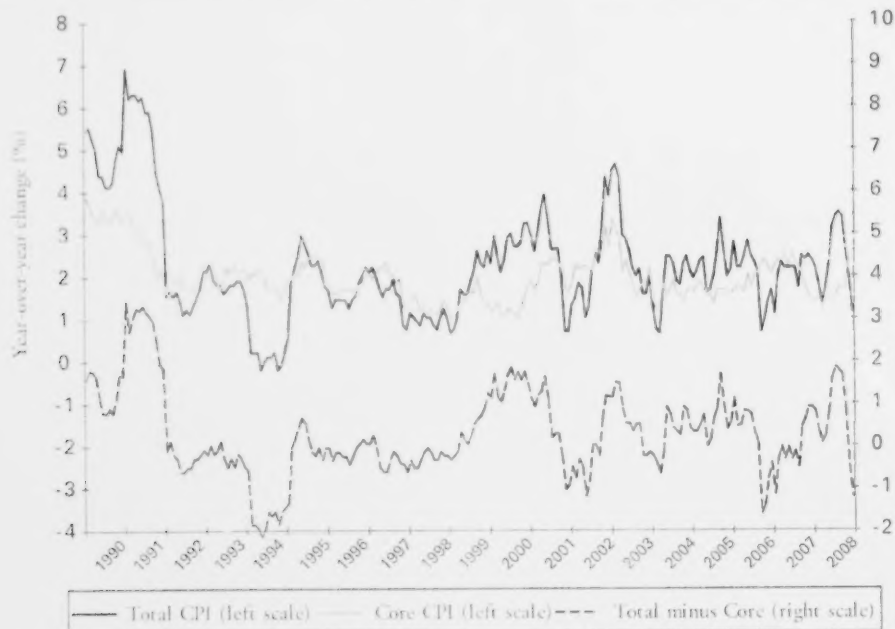
Survey responses also give a mixed picture. Short-term expectations and reported pricing intentions suggest considerable sensitivity to recent experience. Yet surveys of longer-term expectations suggest that the target is credible: at the time of writing, the Consensus Economics surveys show expected inflation over both the 2-3 year and the 6-10 year horizons at 2 percent.¹⁴

12 For an external assessment of this episode, see Robson 2000a and 2000b, and Laidler 2000; for an internal assessment, see Parent (2002) and Parent, Monro and Parker (2003).

13 See Bank of Canada (2008, 20). The core measure in use at the time of writing excludes fruits, vegetables, gasoline, fuel oil, natural gas, mortgage interest, inter city transportation and tobacco products, as well as the effect of indirect taxes on other components of the total CPI.

14 www.bankofcanada.ca/en/rates/indinf.html. Accessed March 4, 2009.

Figure 7: Total and Core CPI Inflation, 1990–2008



Sources: Statistics Canada; author's calculations.

Figure 8: Nominal and Real-Return Bond Yields, 1992–2008



Sources: Statistics Canada; author's calculations.

Political Commitment

No formal change in the dual-responsibility arrangements that give the Bank of Canada instrument independence has occurred since 1995. During his tenure, Governor Thiessen made clear that a directive – and the likely resignation of the governor – would be required to over-rule the targets or the Bank's method of pursuing them (Thiessen 1998, 31-32).

Early in the regime, when the Bank tended to undershoot its targets, sensitivity of financial markets to fiscal stress may have inhibited governmental criticisms of monetary policy; later in the decade, a return to growth made friction over the conduct of policy less likely. Another dissonance between monetary and fiscal policy disappeared when full indexation of personal income-tax brackets (which for a time only moved up when inflation exceeded 3 percent) eliminated the revenue benefits of higher inflation. Some official projections – such as those of the Chief Actuary for the publicly funded pension systems (OCA 2008) – assume long-term inflation somewhat higher than 2 percent. But such expressions of doubt from an arm's-length agency do not signal any significant political problem.

Accountability

What of ability to correct the Bank if it fails to achieve its target? The 2 percent CPI target itself is useful. Canadians widely accept the CPI as a meaningful measure of the cost of living. The move to fixed policy-rate-announcement dates improved the Bank's communications with financial-market participants, academics and the public, and fostered better discussion of monetary policy – a case in point being the interest-rate recommendations from the C.D. Howe Institute's Monetary Policy Council. The Bank's economic assessments have become more transparent now that extensive commentary, including estimates of the output gap and details of

its forecast for quantity variables – and an inflation forecast that, not surprisingly, converges to 2 percent – follows each policy-rate announcement.

On the debit side, two points merit emphasis. First, there is ambiguity about what the Bank's actual target is. If its actions are guided by a stripped-down or re-weighted CPI, a miss can always be "explained" by an unexpected move in a missing or under-weighted price for which the Bank cannot be held responsible – not at all the same as admitting a mistake.

Second, while most of the early adopters of inflation targeting require formal reviews or explanations from their central banks when inflation comes in outside the target range (Roger and Stone 2005, 12 and Table 3), Canada's arrangements do not. During the 157 months from the end of 1995 through December 2008, inflation was above 3 percent or below 1 percent for 29 months, or almost one-fifth of the time (Figure 9). While a parliamentary or other investigation of the Bank's conduct of policy might well conclude that these deviations are no worse than Canadians could expect from any competent central bank, positive political commitment to the targets would be more evident if such an investigation had occurred.¹⁵

Resilience

A discussion of the 2 percent target's resilience can usefully start with two points. First, the widespread adoption of inflation targets around the world – and the fact that the only cases of abandonment happened when targeting countries joined the Euro, which has its own inflation target (Mihor and Rose 2007) – give Canada's regime a durable look. Second, at 13 years, the 2 percent regime has outlasted most of its predecessors.

Furthermore, Canada's economic experience over those years suggests that the regime could endure for years to come. How much credit the targets deserve for Canada's generally good performance since 1995 will never be conclusively known. International

15 Models of central bank behaviour, including those used by central banks, often include "utility functions" to describe the things that make the central bankers happy or unhappy. In the Bank of Canada's models, movements of inflation outside the target range have no special significance in these functions.

statistics suggest that inflation targeting is associated with lower inflation, smaller disruptions from oil-price and exchange-rate shocks, and a better balance of volatility in inflation versus volatility in output (Mishkin and Schmidt Hebbel 2007). But since countries' decisions to target inflation probably coincide with other changes in economic management, the importance of the targets themselves is unclear. What is clear is that Canada's monetary experience since the mid-1990s has several attractive features.

Inflation has been close to target for most of the period, so to the extent that low inflation produces economic benefits such as easier price comparisons, reduced price-change costs and lower tax-related distortions, Canada has reaped many of them (Howitt 1990b and 1997). The success of targeting has naturally reduced inflation volatility, which presumably further reduced search and price-revision costs. Key contracts have longer time horizons. The ratio of long term debt to total business debt, which had shrunk from above 70 percent before 1972 to less than half the total in the early 1980s, was back above 70 percent again in the early 2000s.¹⁶ The duration of average union contracts has risen from around 25 months at the end of the 1970s to more than 40 months since 2004.¹⁷

The distribution of monthly realizations of year-over-year CPI inflation around the target (Figure 9) is ambiguous: skewed enough to the right to suggest some implementation problems, while centred close to the target. The *cumulative* difference between the actual CPI in December 2008 and the CPI that would have resulted from perfect targeting since 1995, however, was an utterly negligible -0.2 percent.

The stability of real GDP under targeting has been good enough to justify a judgement that the population would not reject the regime because of volatile output (Figure 10). Nominal and (realized) real interest rates have moved in directions generally considered benign (Figure 5). The fact that, until the financial crisis, they were below US rates is

particularly notable because, while fiscal policy played a part, some skeptics of the regime denied the possibility at the outset. The volatility of interest rates has also declined since the early 1990s.

One financial development that would not obviously reinforce support for the target is the record of the Canada-US dollar exchange rate: a sizeable depreciation after 1995, an even larger and faster appreciation to mid-2008, and a plunge since then. The fact that Canada's terms of trade could largely account for these movements made them no less irritating to people exposed to them because, for example, they trade across the Canada-US border. Since the actual or apparent disruptive effects of a volatile exchange rate constitute one of the principal threats to the durability of the current Canadian monetary order, this observation is a suitable segue to some closing speculations about its future.

The Future of Canada's Monetary Order

On balance, this survey suggests that Canada's current monetary order merits the term, and could persist indefinitely. It exhibits to a remarkable degree the key characteristics its predecessors partly or wholly lacked (Table 1). The genie of fiat money in Canada has evidently been tamed. To be taken seriously, any proposal for change needs to control the genie at least as well – in other words, to measure favourably against this scorecard.

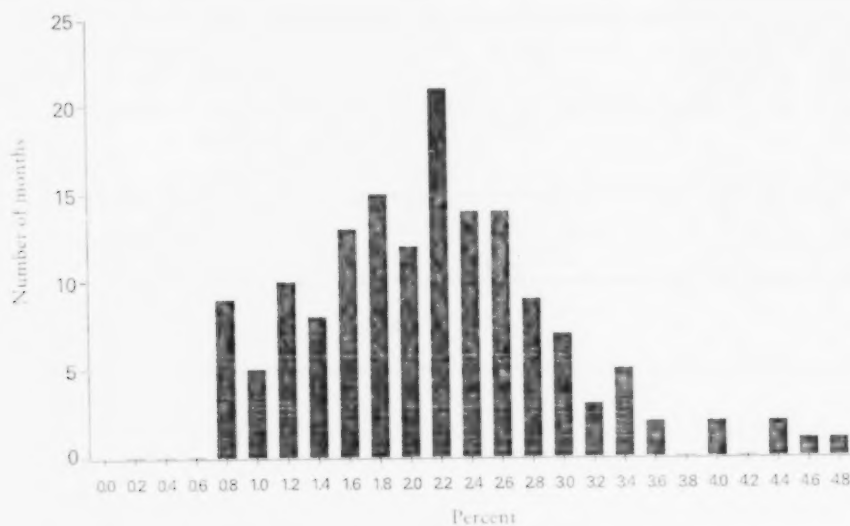
Adopting the US Dollar

A fundamental change to Canada's monetary regime that attracts occasional attention would eliminate the Canadian dollar as an independent currency in favour of another currency – either the US dollar or a multinational currency (see for example, Grubel 1999). Its potential disappearance has sometimes been represented as a spontaneous reaction to some combination of exchange-rate volatility and cross-border integration – an environment to which the

16 CANSIM series v122646 and v122647.

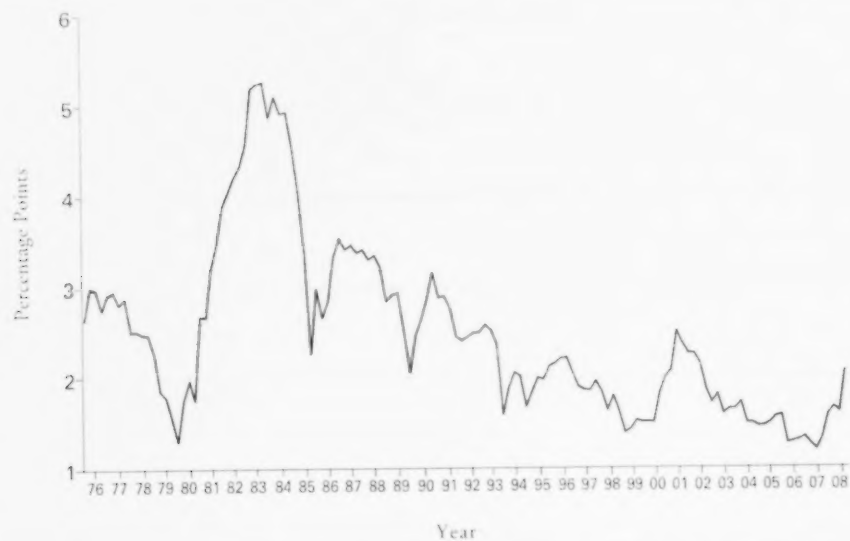
17 www.hrsdc.gc.ca/en/labour/labour_relations/info_analysis/wages. Accessed October 7, 2008.

Figure 9: 12-Month CPI Inflation Rates, December 1995–August 2008



Sources: Statistics Canada; author's calculations.

Figure 10: Standard Deviation of Quarterly Change in Real GDP (12-Quarter Window)



Sources: Statistics Canada; author's calculations.

Table 1: Canada's Historical Monetary Regimes – Key Characteristics

	1935-46	1945-49	1950s	1960s	1970-80s	1991-95	1995-now
Clear goal	No	Yes?	No	Yes?	No	Yes	Yes
Technical power	No?	No?	Yes	Yes	Yes	Yes	Yes
Tactical skill	No	?	?	Yes	No	Yes?	Yes
Democratic support	?	No?	No	?	No?	Yes?	Yes
Accountability	?	?	No	Yes	?	Yes?	Yes?
Conforming behaviour	No	No	?	No	No	?	Yes?
Resilience	No	No	No	No	No	Yes?	Yes

*Assumes a purely hypothetical 15% increase in the utilization of tax losses.

Table 2: Canada's Potential Monetary Regimes – Key Characteristics

	No C\$	Peg	Output Stabilization	Lower Inflation Target	PCED- like Index Target	Longer Reference Period	Rising Price- Level	Stable Price- Level
Clear goal	?	Yes	No?	Yes	Yes	Yes	Yes	Yes
Technical power	n.a.	Yes	Yes?	Yes	Yes	Yes	Yes	Yes
Tactical skill	n.a.	Yes	?	Yes	Yes	Yes	Yes	Yes
Democratic support	?	?	Yes?	Yes	Yes	Yes	No?	Yes
Accountability	No	Yes	No	Yes*	Yes*	Yes?	Yes*	Yes*
Conforming behaviour	?	No	No	Yes?	Yes?	Yes?	?	Yes
Resilience	?	No	No	Yes	Yes	Yes	?	Yes

*Straightforward "yes" is more justifiable if new provisions for explaining and correcting misses accompany the new target; otherwise, a question mark seems apt.

existing regime would not be resilient. Research on voluntary use of the US dollar in the late 1990s and early 2000s, however, revealed no tendency for displacement of the Canadian dollar (Laidler and Poschmann 2000; Murray and Powell 2002). More likely than spontaneous "dollarization" would be financial turbulence – persistent large, exchange-rate swings that overwhelmed the Bank's tactical ability to hit the inflation target, for example – that prompted pressure to escape evidently useless pain by adopting the US dollar.

Adopting a different currency does not mean choosing a monetary goal in the same way that pegging the exchange rate does. Canadians would no longer have fiat money at their disposal. Since adopting a different currency would reflect a judgement that economic life would improve without the Canadian dollar, that less precise goal

would mean indirectly adopting whatever goal(s) the central bank controlling the new currency had. Abstracting from the one-time costs of replacing the money stock, technical ability to engineer the change is not in question. Tactical ability to influence economic life would not be meaningful in the senses this *Commentary* has discussed: much of Canada's existing financial infrastructure – not only the clearing and settlement systems already mentioned, but deposit insurance regimes, solvency oversight, and much other financial-sector regulation – would be replaced on whatever terms political negotiations could achieve (Robson and Laidler 2002).

Among the criteria for a monetary order enumerated here, an obvious gap in a US-dollar-based regime would be accountability. Canada would have no representation in the US Congress or

in US presidential politics, and would therefore have no say over the conduct of US monetary policy. My judgement is that Canada and the United States would need economic integration and political comity a quantum jump more intimate before this tradeoff would be acceptable to a majority of Canadians.

Re-pegging the Exchange Rate

The obvious alternate response to unbearable exchange-rate turbulence would be a return to a pegged Canada-US dollar exchange rate. Since this *Commentary* has already canvassed the regimes that existed in the late 1940s and 1960s, the key point to make here is that the scorecard for a new peg would resemble those of the old ones. The goal is well defined and consistent with the powers of a central bank. The technical and tactical abilities are not mysterious: the Bank of Canada would set its policy interest rate – and, if necessary, intervene in foreign-exchange markets – in whatever fashion the peg demanded.

In one sense, accountability for the goal and success in achieving it seems straightforward: the government can declare a peg, using its directive power if necessary, and impose its will on the Bank. In another sense, though, these elements – and the related elements of conforming behaviour and resilience – are not inherent in a pegged regime. The real exchange rate would still move when the nominal exchange rate is pegged. Fixing the nominal rate forces those adjustments to occur exclusively through changes in Canadian wages and prices relative to those in the United States. Since Canada's real exchange under a peg would still be subject to many of the same forces that have moved it in the past, one might reasonably expect that large swings in Canada's terms of trade or net external demand would eventually create domestic stresses large enough to call the government's commitment to the peg into question, presenting future foreign-

exchange traders with the same one-way bets their predecessors faced in 1949, 1950 and 1970. Pegged exchange rates have not been durable in the past, and there is no reason to expect them to be more resilient in the future.

Formally Stabilizing Output

A quite different response, should adverse domestic or world circumstances make the inflation target less congenial, would be to add a requirement that the Bank target stable output as well.¹⁸ Doing this formally might mean that the Bank of Canada's target would be a weighted average of inflation and output – and that it would set policy to minimize their joint deviations from the target.¹⁹

Such a regime would score poorly by the criteria canvassed here. The goal itself is not obviously one monetary policy can achieve, since output fluctuations can result from both demand and supply shocks, and central banks can do nothing about the latter. Even absent supply shocks, specifying the formula describing the tradeoff between output and inflation presents formidable problems of communication and accountability – not to mention implementation, since the weights have to be derived from an economic model, and economic models have to be based on actual history, in which the central bank followed a different rule.

Finally, the readiness of expectations and behaviour to conform to the regime, and its resilience in the face of shocks, is doubtful. Although the parallels to the Bretton Woods era are inexact, the simple fact that the Bank of Canada had been formally charged with stabilizing output might lead people to assume, if times got tough, that the Bank or its political masters would elevate the output objective at the expense of inflation control (Crujisen and Eijffinger, 2007) – as people rightly inferred with respect to the Bretton Woods exchange-rate obligations in the late 1940s.

18. The 2002 renewal of New Zealand's inflation targets contained an informal prescription of this sort, which may amount to nothing more in practice than its counterpart in the Bank of Canada's mandate.

19. The actual behaviour of many central banks appears to be a function of both inflation and output – the well-known "Taylor rule" is an attempt to relate interest-rate setting to both. A combined goal might involve an attempt to turn this type of rule into a prescription (see Parkin, 2009; and Koepl, 2009).

Lowering the Inflation Target

Among the less revolutionary options for a new regime is one that resembles the current one, but targets a different inflation rate. The 2 percent target is as much an accident of history as a well-deliberated choice. Two percent inflation is a long way from price stability. If the Bank engineers monthly inflation at exactly a 2 percent annual rate between January 2009 and the end of 2011, the cumulative loss of the currency's purchasing power since 2 percent targeting began at the end of 1995 will surpass one-quarter by then. Its interaction with imperfectly indexed taxes also matters. For instance, a 50 percent effective marginal tax rate and 2 percent inflation reduces the real after-tax return from a long-term government bond yielding 4 percent to nothing. Even after such a long period of successful targeting, inflation protection is still costly. Investors in real-return bonds or inflation-protected annuities pay a high price compared to those who are prepared to take inflation risk themselves (Parkin 2009). To the extent that inflation imposes costs because of money illusion and frictions associated with price changes, a lower target makes sense, and no inflation at all is a particularly compelling goal.

While a different inflation rate is a goal the Bank of Canada can logically be asked to achieve, choosing a number would involve tempering marginal calculations of benefits and costs with the need for a round figure the public would accept. Lowering the target to some number such as 1.72 or 1.18 percent is not a serious prospect. One percent would have obvious advantages for communication, and zero would be crystal clear.

On the technical/tactical front, a familiar objection to a step down to one or zero is fear that Canada might experience an accidental deflation, and that inability to lower the policy interest rate below zero would prevent monetary policy responding effectively. I do not share this concern. To the extent that the exchange rate matters for domestic monetary

conditions, depreciation is always an option. The recent financial crisis showed that negative interest rates on instruments that pay no coupon but mature at par, such as government treasury bills, are not just a theoretical possibility. We have also recently seen how central banks can emit high-powered money in exchange for financial assets that, amidst deflation, are unattractive to their holders – which permits essentially unlimited monetary stimulus. Techniques to avoid deflation exist; only tactical errors pose such a threat to the resilience of a regime based on a lower inflation target.

Targeting a Different Index

A second potential fine-tuning relates to the price index. Different indexes might appear appropriate for reducing particular costs arising from inflation – ones that over-weight stickier prices and, prices of non-traded goods, or include wages, for example. A particular aim in this selection might be improving the trade-off between price stabilization and output stabilization. So, to pick an obvious example, the Bank might formally target a “core” inflation measure similar to those now in use: ones that leave out either the prices of some items that are typically more volatile, or month-by-month price changes of more than a certain (relative) size.

Core inflation measures may be familiar, but some conceptions of how monetary policy works call their logic as central-bank goals into question. If the price level is a consequence of past experience and the current output gap, a stripped-down or anti-volatility weighted index may make sense. If the price level reflects the value of money – which in turn reflects the size of the money stock relative to the demand for it – such indexes make no more sense than asking the central bank to target a single price, such as that for peanut butter. A target index that does not cover a large proportion of the economy's money-based transactions might be hard for the Bank of Canada to achieve in a tactical sense.²⁰

20 The argument that a core measure such as those now in use would make monetary policy more palatable by smoothing its response to temporary fluctuations in volatile prices does not hold up. At the horizon pertinent for inflation targeting, projections for total and core inflation within the central bank tend to converge (Clinton 2006), so policy implementation would not differ under regimes targeting one or the other. Smith (2009) provides further critiques of these suggestions.

As for political acceptance and accountability, indexes far removed from ordinary experience are unsatisfactory. Canadians generally would care less about an index that explicitly ignores many elements of their consumption basket. They would correspondingly be less inclined to hold the Bank to account if it missed the target. Conforming behaviour and resilience would probably be less under such a regime than under the current one.

A more formidable challenger to the CPI is a measure such as the price index for personal consumption (PIC). A “superlative” chained index, the PIC avoids the upward bias of indexes using fixed past weights – which neglect price-driven substitution among products and outlets – and thus is more pertinent for monetary control and relevant to household experience.²¹ A critical problem with the existing quarterly PIC is that, like other national income and expenditure accounts measures, it is largely derived by dividing nominal-dollar spending by volume measures, which takes longer and is more subject to revision than the monthly survey that supports the CPI. To improve the CPI by conducting more frequent expenditure surveys and moving to monthly estimates of the relevant national income and expenditure measures would be desirable, and not just as a way to improve monetary policy.²²

Lengthening the Inflation Reference Period

Annual inflation measures, though familiar, are arbitrary. What about measuring changes in the target index over a different time period?

Shorter time horizons are unattractive. Monetary control is too imprecise to stabilize, say, month to month without a very wide (in annualized terms)

error band. And the shorter the time period, the more lack of commitment to correct mistakes under an inflation target matters: a 12-month measure in principle at least requires a mistake in the early months to be corrected later.²³ Longer time horizons have the corresponding advantages. They better align the target horizon with the period – generally considered to be 18–30 months – over which the central bank can influence the price level. A longer reference period might – mainly because it is not the same as the annual inflation measures that are universally familiar – create communication problems that compromise accountability. To the extent this problem is overcome, however, it could provide an anchor for expectations at a longer time horizon, and thus – in a neat specific instance of coherence in a monetary order – create *ex ante* real interest rates that assist the central bank in hitting its target.²⁴

Targeting the Price Level

If extending the reference period scores well on all attributes except possibly accountability, the extreme version of this goal – one in which the central bank targets the price level itself – deserves special consideration. With this kind of target, bygones are never bygones: the central bank must bring the price level back to target following any deviation.

The goal is a logical one for monetary policy. How easily understood and accepted it would be by the public would likely depend on the index chosen, and would certainly depend on the targeted path for it. A target for a stripped-down CPI would probably not work well, since the commitment to ignore some changes in relative prices that is implicit in *de facto* targeting of a core measure would become explicit. The targeted path presents an even starker

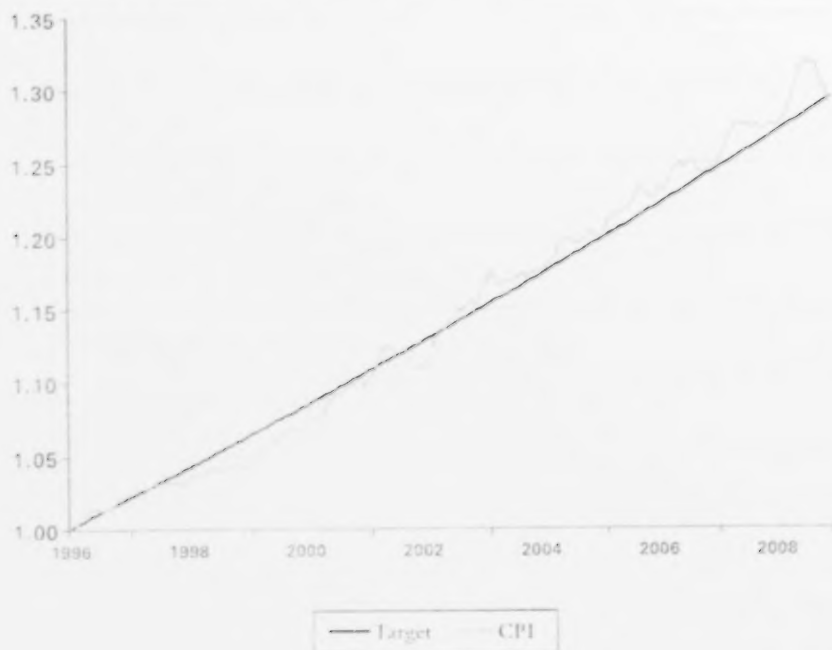
21 “Superlative” indexes are geometric averages of Laspeyres indexes, which use past weights, and Paasche indexes, which use current ones. See Smith (2009) for fuller discussion of this and related issues.

22 More frequent expenditure surveys would also improve the PIC and other national income accounts measures of household spending. As Smith (2009) hints, the expense of more frequent surveys would likely be readily recouped elsewhere in the federal government’s budget. CPI-indexed seniors’ benefits currently total some \$33.5 billion annually. If the 1-percentage point gap between the CPI and the PIC evident since 2001 is representative of the future, the annual saving from reduced bias in these programs alone would be more than \$330 million in the first year.

23 Although the fact that the reference period moves forward means that mistakes drop from the record every time a new month enters it.

24 This phenomenon, explored in several Bank of Canada modeling exercises, arises because when inflation has been above target early in the period, expectations of lower inflation later will make a given nominal interest rate appear higher in real terms, and thus more restraining of borrowing and spending. When inflation has been below target early in the period, the opposite happens. This feature is part of the attraction of the *de facto* infinite averaging period involved in price-level targeting, discussed further in the next section.

Figure 11: CPI and Target in Levels, December 1995–December 2008



Sources: Statistics Canada; author's calculations.

challenge. An explicit commitment to erode the value of money – by 2 percent annually, if the target were intended to replace the current one with something involving less future uncertainty – would surely strike most people as crazy, akin to a commitment to shrink, say, the metre, the litre, or degrees of temperature annually. A commitment to stabilize prices, on the other hand, would be immediately understood.

Assuming a suitably broad and relevant price measure were targeted not to change over time, holding the central bank to account would be simple, especially since error-related uncertainty would not increase with time horizon. And conforming expectations could reduce both price and output volatility.²⁵ This type of target would require an error band wide enough to ensure that the Bank of Canada was not simply set up to fail –

in the sense that it would constantly have to explain why it was not on target. Experience since 1995 suggests that one percentage point is probably wide enough: a formal requirement for the Bank to acknowledge the deviation and explain its plan for getting back inside the band at the earliest possible date would foster credibility and accountability.

Indeed, the closeness of the actual path of the CPI to what it would have been had the Bank targeted a 2 percent annual rise in the CPI since 1995 (Figure 11) suggests that the tactics and results of monetary policy under such a regime would not be very different from those of the past 13 years, and that a transition from an inflation target to its equivalent price-level target would be easy (Kamenik et al. 2008). There is good reason to think that a price-level targeting regime would foster coherent expectations and behaviour, and would prove resilient.

25 Côté (2007) provides a useful recent summary of work on this issue. Much of the modeling tends to find that whether price-level targeting would reduce volatility more than inflation targeting depends on the extent to which expectations are forward looking. Awkwardly, the adoption of a price-level targeting regime might logically be expected to affect expectations strongly – an experiment that has not yet been tried.

The Accountability Framework

This discussion of modifications to the current regime has referred several times to a topic that merits explicit consideration before concluding: how Canadians can judge the Bank of Canada's performance in hitting the chosen target and, if the Bank has performed poorly, do something about it.

A deficiency in the current framework that seems especially salient, considering the recent persistent penetration of the top of the error band and crisis-inspired fears of imminent deflation, is the lack of any requirement for the Bank to account for its success or failure in hitting the target, and of any way for the government to reward or punish that performance. Such a requirement would also strengthen the accountability of the elected government for its choice of target – since analysis both inside and outside the Bank would presumably shed light on the target's reasonableness – and for any actions the government took that complicated the Bank's task.

Formal accountability sessions – to the public at the time of the Bank's Monetary Policy Reports, for example, and to Parliament through the Standing Committee on Finance at least annually – might appear as challenges to the Bank's independence at a given occurrence, but their effect over time would be quite different. As the above discussion of goals, tactics, expectations and resilience makes clear, public acceptance and understanding of the Bank of Canada's goals and procedures is vital to a durable monetary order. In the long run, regular communication about hits and misses, and the

reasons for them, would improve the order based on a 2 percent CPI target, and would launch more effectively an order based on a new index and/or price-level-related target. The summary of potential new regimes benchmarked against the key characteristics of a monetary order in Table 2 uses an asterisk to signal the importance of such provisions.

Summary

The core message of this *Commentary* is straightforward. The regime of 2 percent CPI inflation targeting that has prevailed in Canada since 1995 constitutes a monetary order: its combination of a clear goal, technical and tactical capacity, democratic support and accountability, coherence and resilience mark it as superior to any predecessors since the Bank of Canada's establishment in 1935.

These elements are useful benchmarks against which to judge potential modification when the current targets expire in 2011. Regimes based on another currency, a pegged exchange rate, or an explicit requirement to stabilize output would fall short of the current one in key respects, and would likely prove unsatisfactory and brittle. Regimes that strengthen the commitment to preserve the value of Canada's currency by adopting superior price measures, lowering the inflation target, or going to a price-level target could match the benchmarks set by the current order and – particularly if accompanied by formal requirements to explain and correct deviations from the target – could improve on it.

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